FIG.1

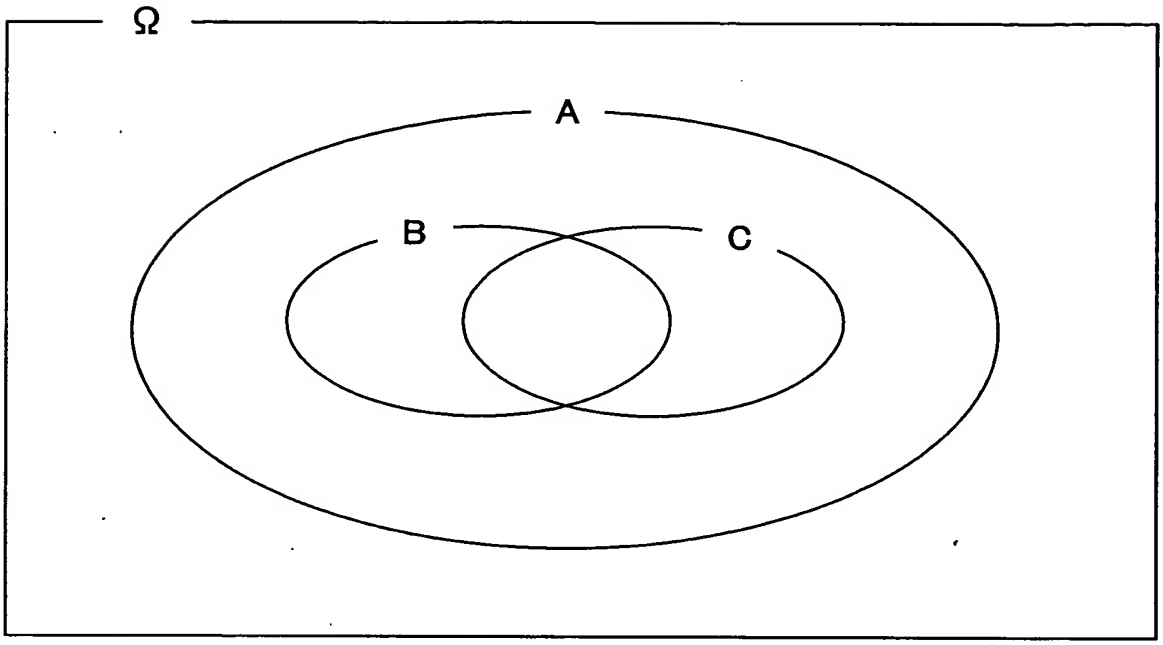

FIG.2

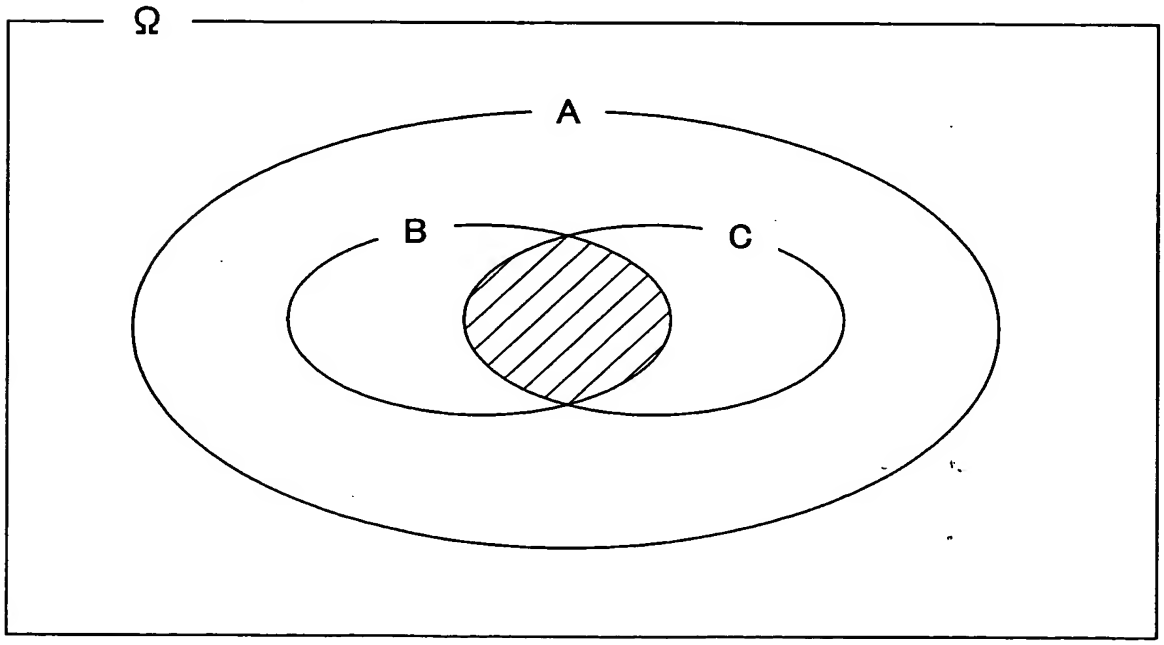

FIG.3

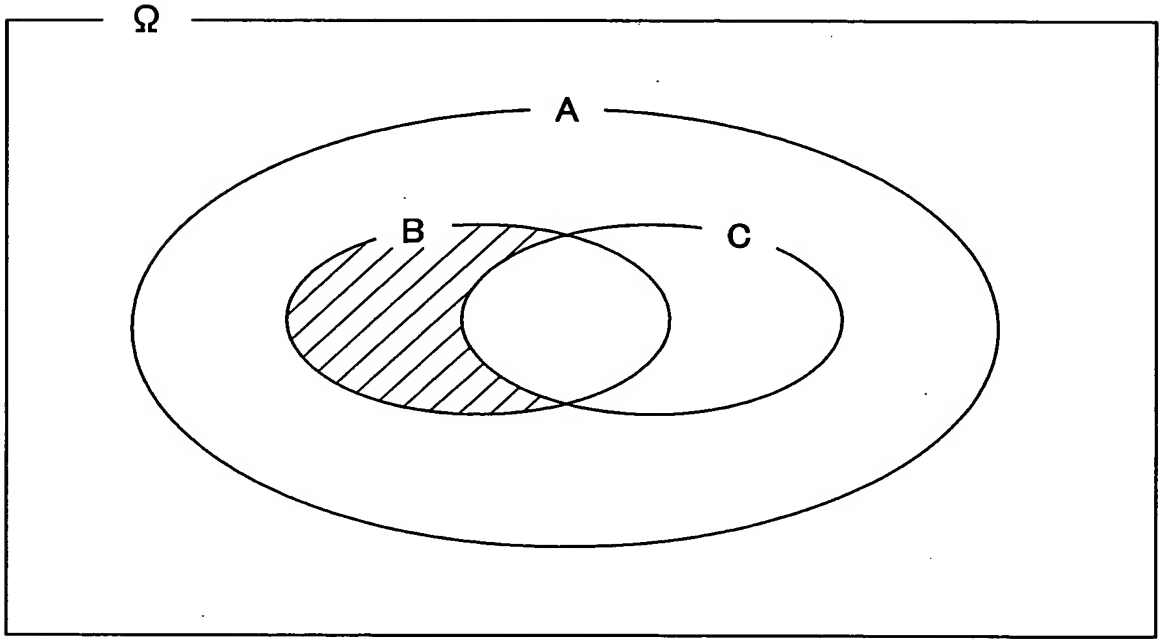

FIG.4

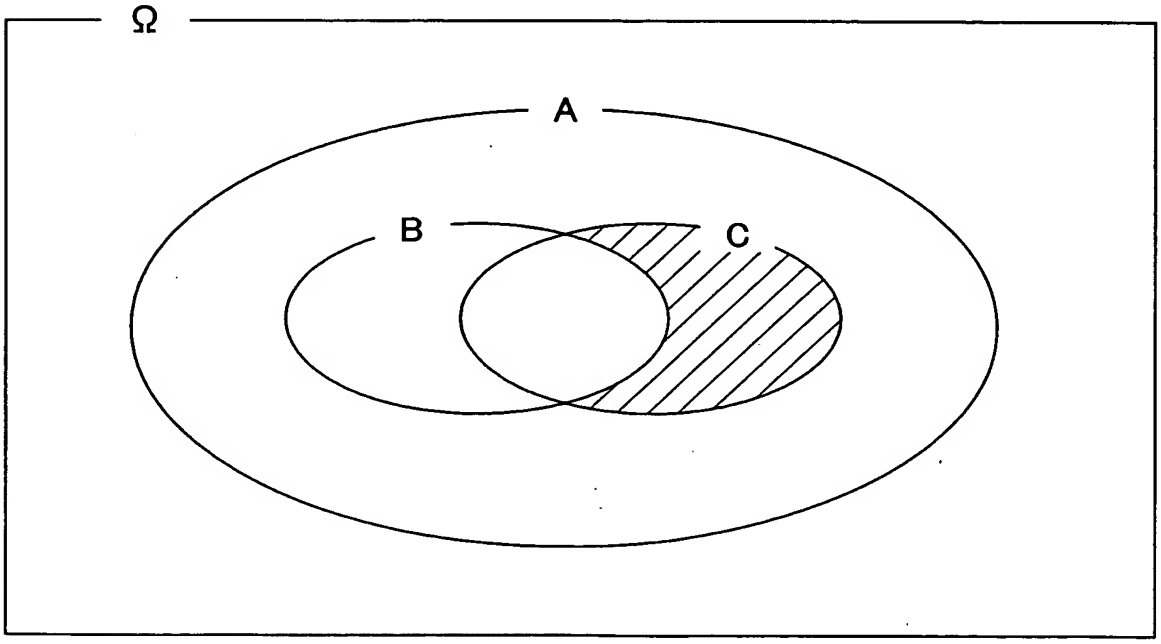

FIG.5

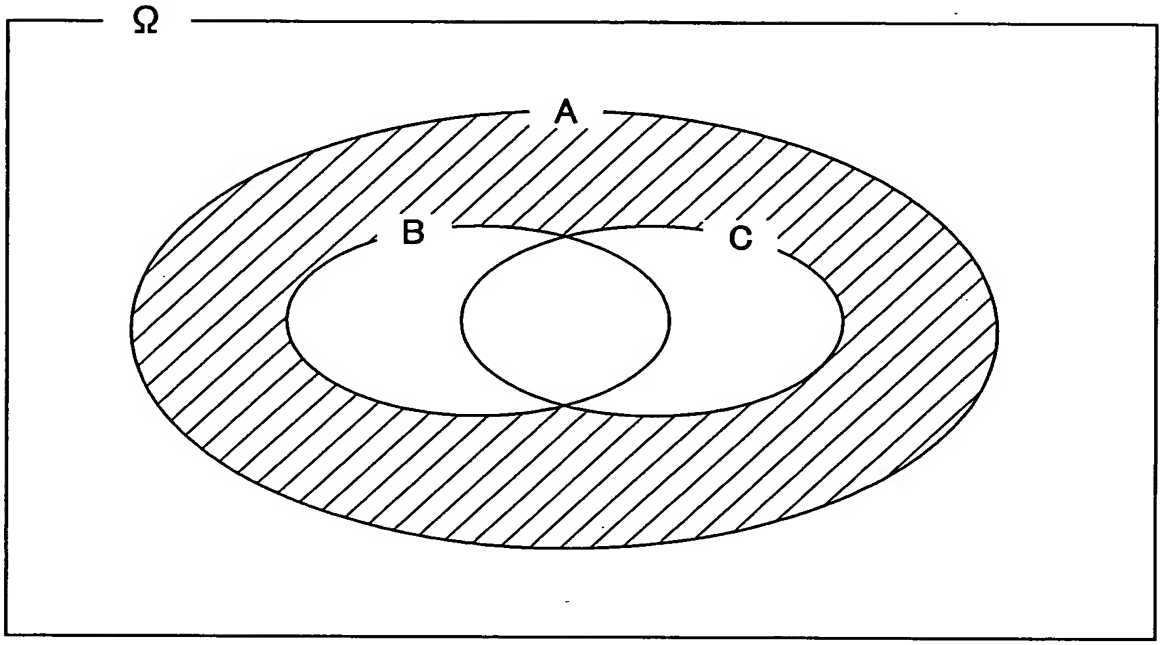

FIG.6

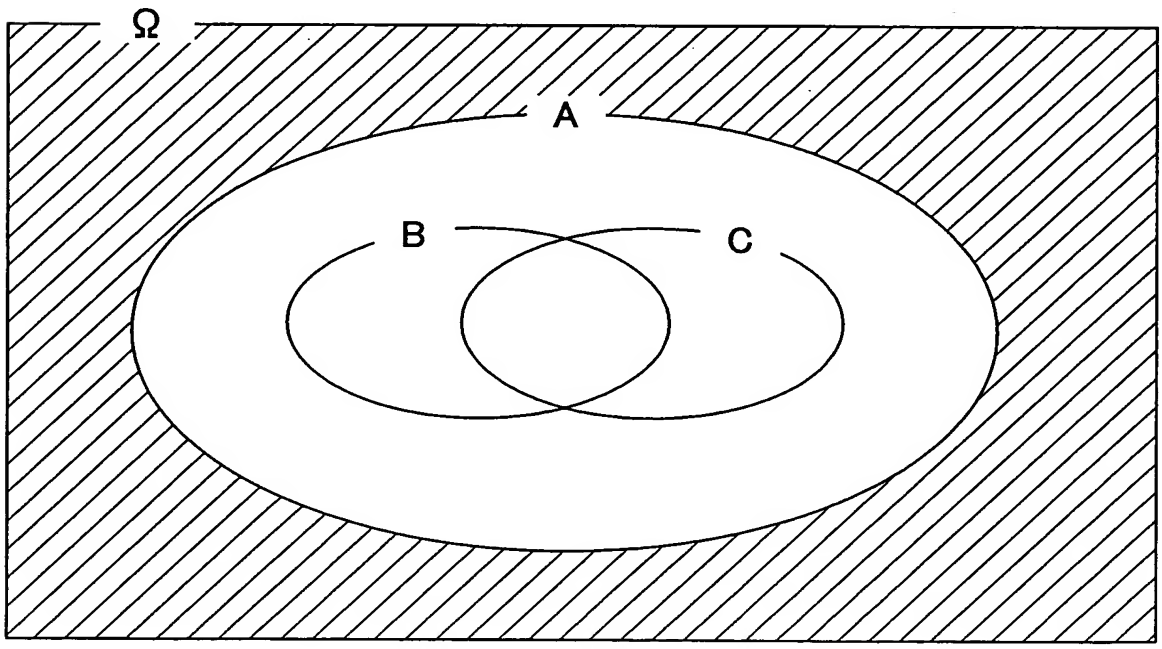

FIG.7

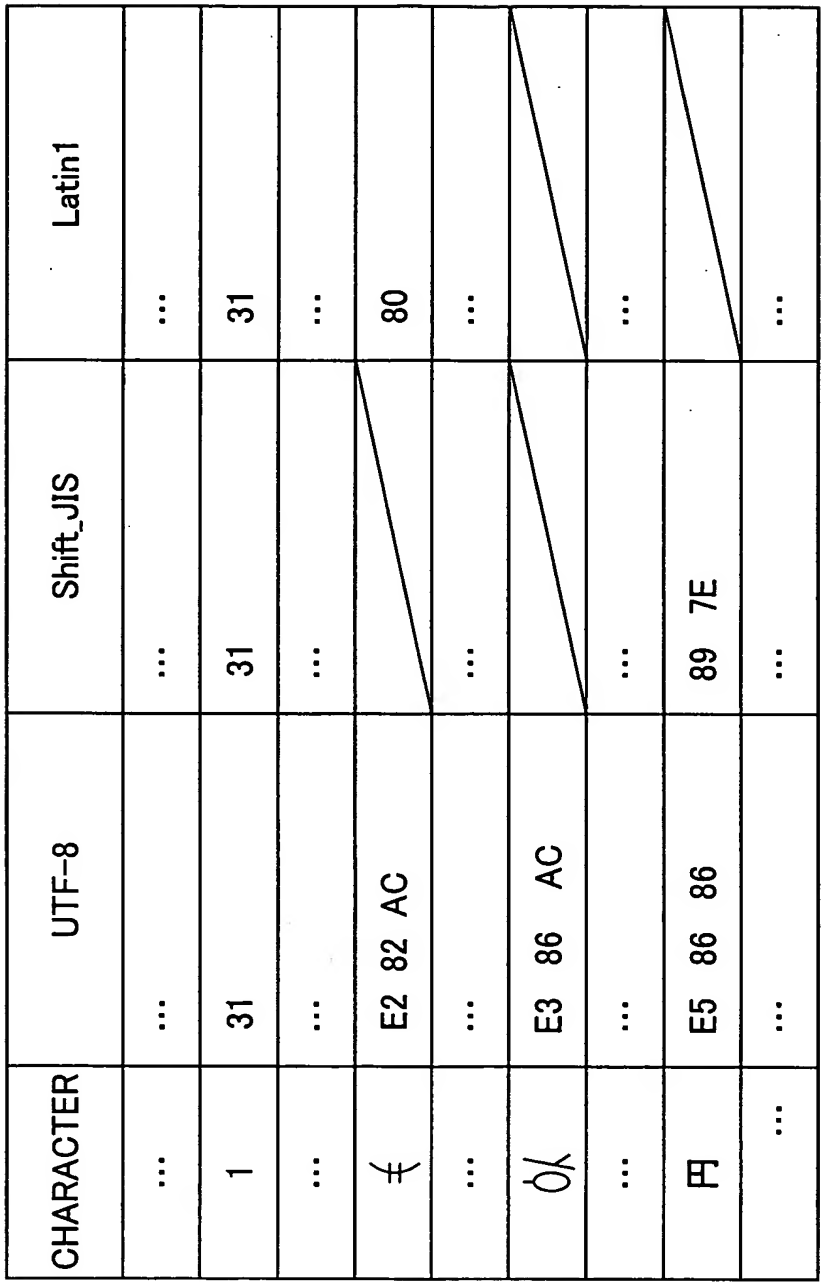
CHARACTER
UTF-8
Shift_JIS
Latin1
...
1
31
...
...
...

FIG.8

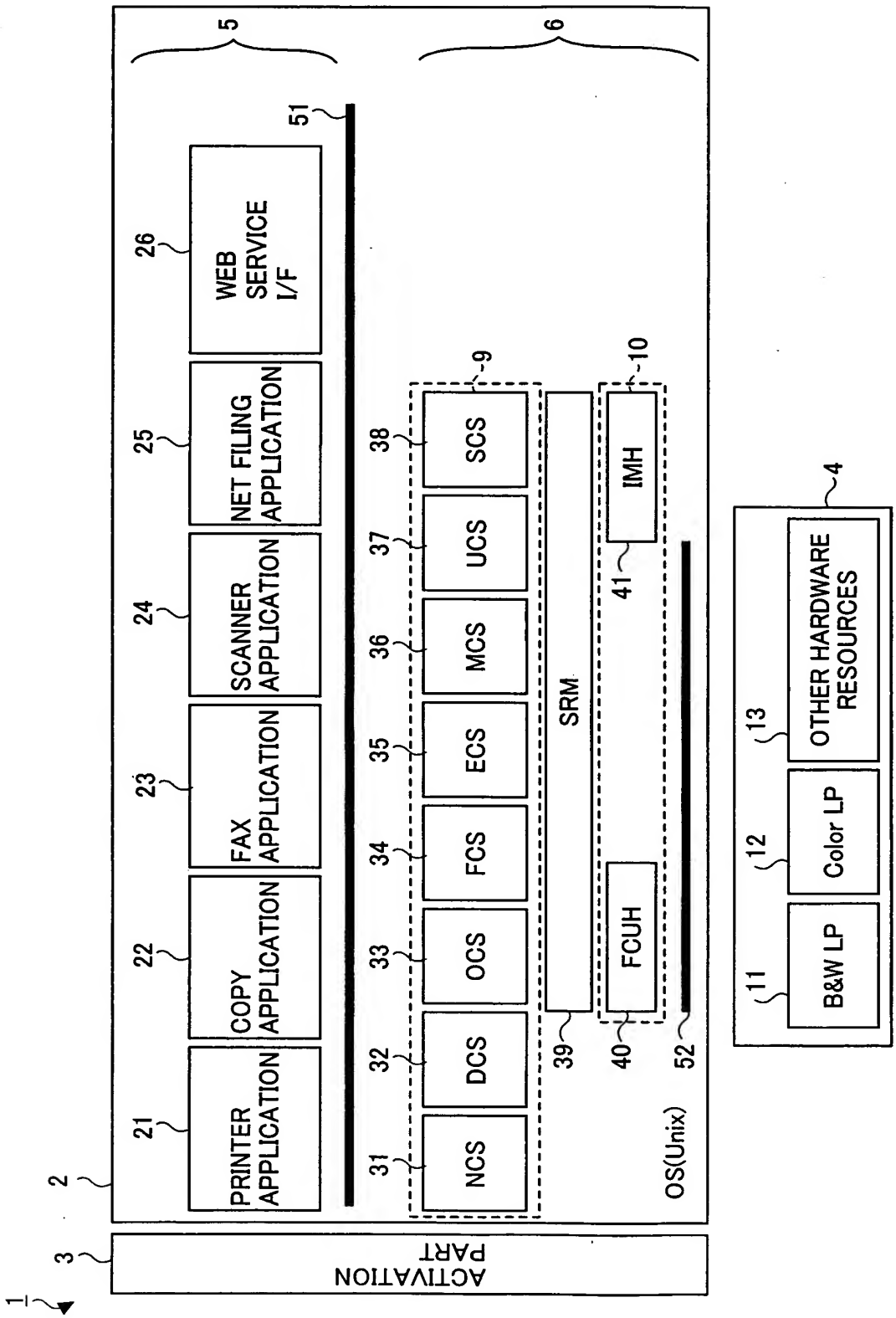
1
2
3
ACTIVATION PART
5
6
51
PRINTER APPLICATION
21
COPY APPLICATION
22
FAX APPLICATION
23
SCANNER APPLICATION
24
NET FILING APPLICATION
25
WEB SERVICE I/F
26
NCS
31
DCS
32
OCS
33
FCS
34
ECS
35
MCS
36
UCS
37
SCS
38
-9
SRM
39
FCUH
40
IMH
41
-10
OS(Unix)
52
4
B&W LP
11
Color LP
12
OTHER HARDWARE RESOURCES
13

FIG.9

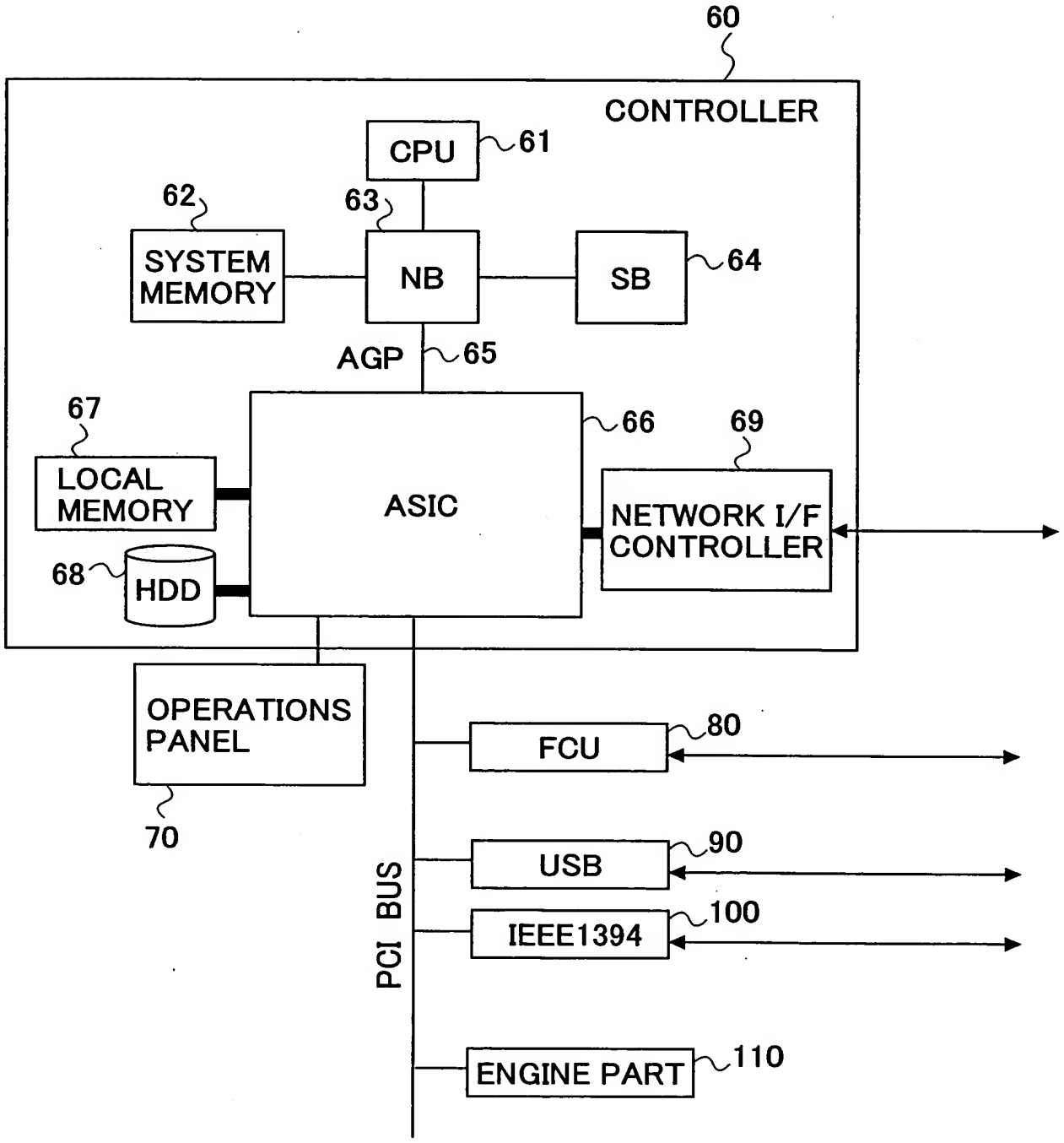
60
CONTROLLER
CPU
61
62
63
SYSTEM MEMORY
NB
SB
64
AGP
65
67
66
69
LOCAL MEMORY
ASIC
NETWORK I/F CONTROLLER
68
HDD
OPERATIONS PANEL
70
FCU
80
USB
90
IEEE1394
100
PCI BUS
ENGINE PART
110

FIG.10

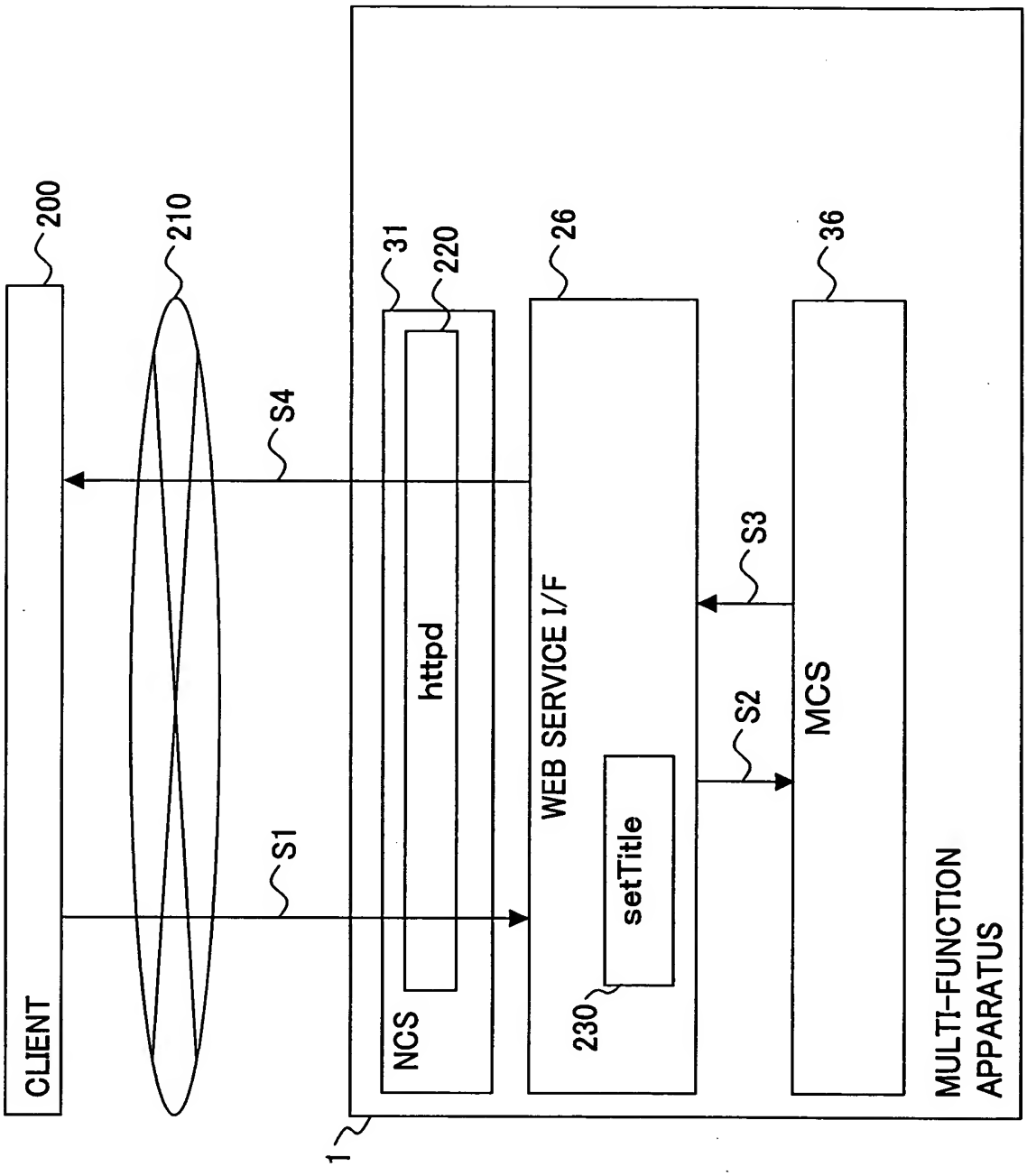
200
210
31
220
26
36
S4
S3
S2
S1
CLIENT
NCS
httpd
WEB SERVICE I/F
setTitle
230
MCS
MULTI-FUNCTION APPARATUS
1

FIG.11

```
- <SOAP-ENV:Envelope xmlns:SOAP-
    ENV="http://schemas.xmlsoap.org/soap/envelope/" xmlns:SOAP-
    ENC="http://schemas.xmlsoap.org/soap/encoding/"
    xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
    xmlns:xsd="http://www.w3.org/2001/XMLSchema" SOAP-
    ENV:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
    xmlns:m0="http://schemas.ricoh.co.jp/commontypes">
  - <SOAP-ENV:Body>
    - <m:setTitle xmlns:m="http://soapdefs.ricoh.co.jp/repository">
        <id xsi:type="xsd:anyURI">doc1234</id>
        <value xsi:type="xsd:string">Göte作</value>
      </m:setTitle>
    </SOAP-ENV:Body>
  </SOAP-ENV:Envelope>
```

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FIG.12

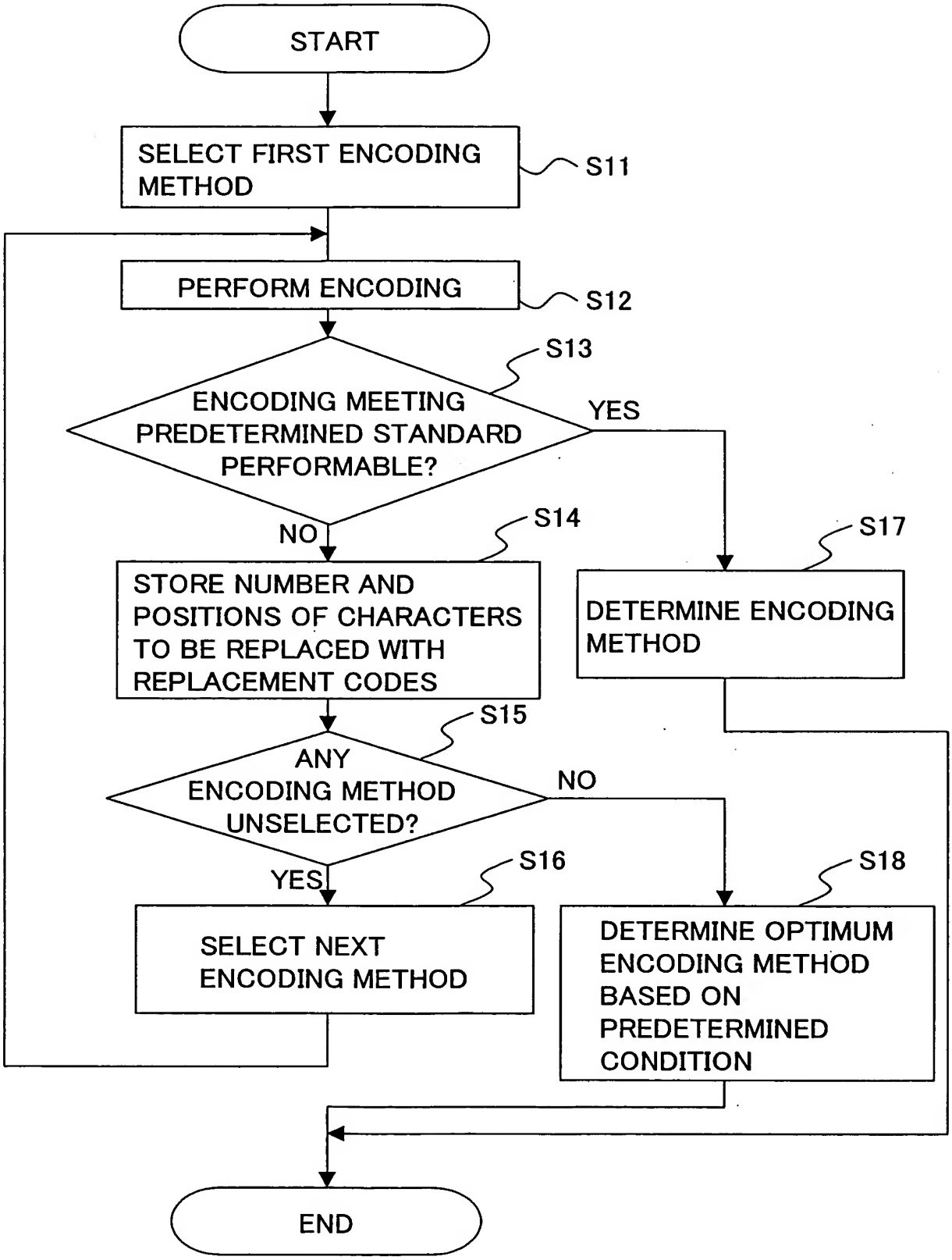
START
SELECT FIRST ENCODING METHOD
S11
PERFORM ENCODING
S12
S13
ENCODING MEETING PREDETERMINED STANDARD PERFORMABLE?
YES
NO
S14
STORE NUMBER AND POSITIONS OF CHARACTERS TO BE REPLACED WITH REPLACEMENT CODES
S15
ANY ENCODING METHOD UNSELECTED?
NO
YES
S16
SELECT NEXT ENCODING METHOD
S17
DETERMINE ENCODING METHOD
S18
DETERMINE OPTIMUM ENCODING METHOD BASED ON PREDETERMINED CONDITION
END

FIG.13

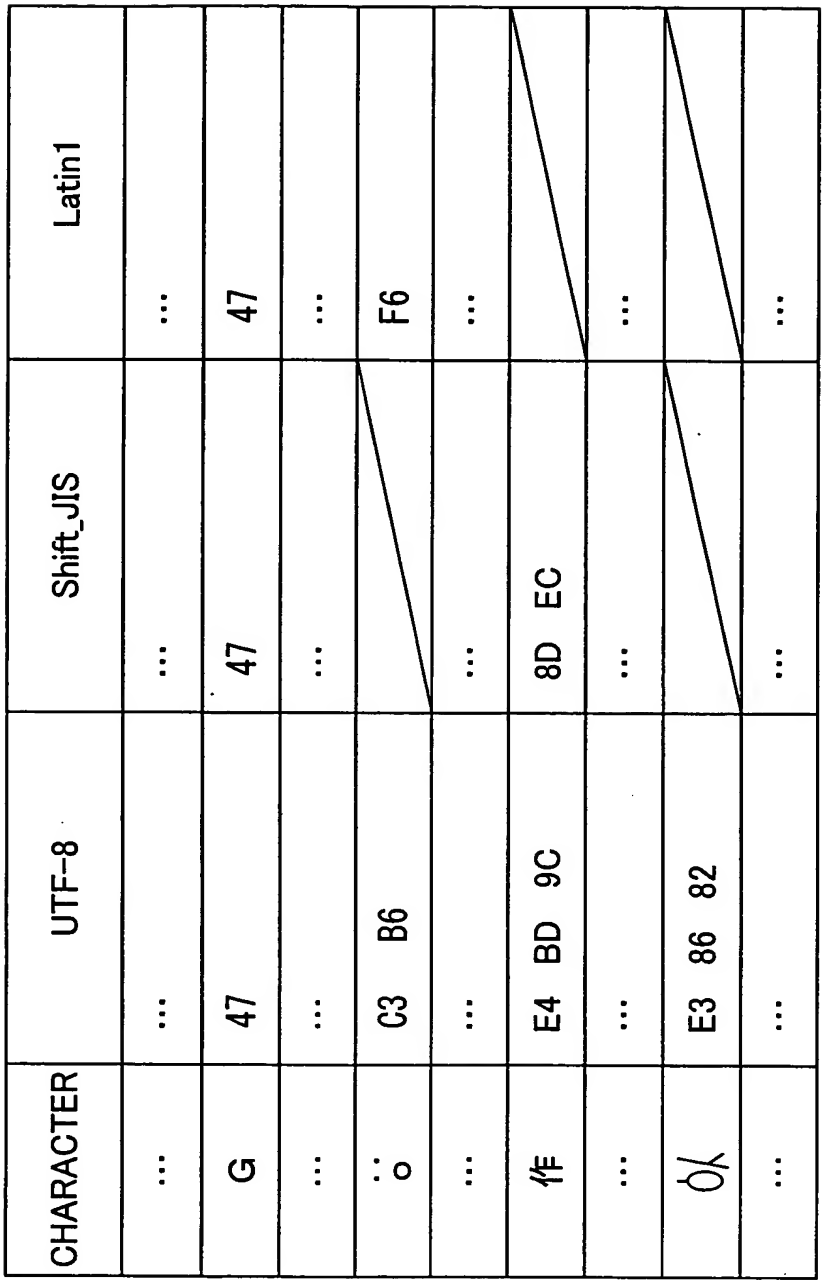
CHARACTER
UTF-8
Shift_JIS
Latin1
...
G
47
...
...
...

FIG.14

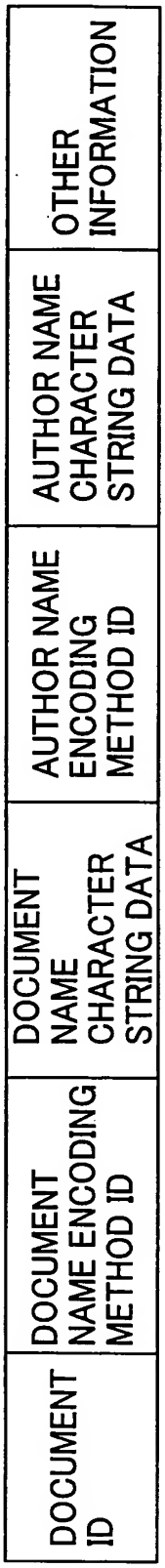
DOCUMENT ID
DOCUMENT NAME ENCODING METHOD ID
DOCUMENT NAME CHARACTER STRING DATA
AUTHOR NAME ENCODING METHOD ID
AUTHOR NAME CHARACTER STRING DATA
OTHER INFORMATION

FIG.15

ORIGINAL CHARACTER STRING (UTF-8)	CONVERTED CHARACTER STRING (INTERNAL ENCODING METHOD	RE-CONVERTED CHARACTER STRING (UTF-8)
G ö t e 作	G [?] t e 作 (Shift_JIS)	G [?] t e 作
G ö t e 作	G ö t e [?] (Latin1)	G ö t e [?]

FIG.16

Shift_JIS		UTF-8 FOR WINDOWS		UTF-8 FOR MAC	
CHARACTER	CODE	CHARACTER NAME	CODE	CHARACTER NAME	CODE
¥	5C	BACKSLASH	5C	YEN SIGN	C2 A5
	7E	TILDE	7E	OVERLINE	E2 80 BE
～	81 60	FULLWIDTH TILDE	EF BD 9E	WAVY DASH	E3 80 9C
∥	81 61	PARALLEL TO	E2 88 A5	DOUBLE VERTICAL LINE	E2 80 96
−	81 7C	FULLWIDTH HYPHEN	EF BC 8D	MINUS SIGN	E2 88 92
¢	81 91	FULLWIDTH CENT SIGN	EF BF A0	CENT SIGN	C2 A2
£	81 92	FULLWIDTH POUND SIGN	EF BF A1	POUND SIGN	C2 A3
¬	81 CA	FULLWIDTH NOT SIGN	EF BF A2	NOT SIGN	C2 AC

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FIG.17

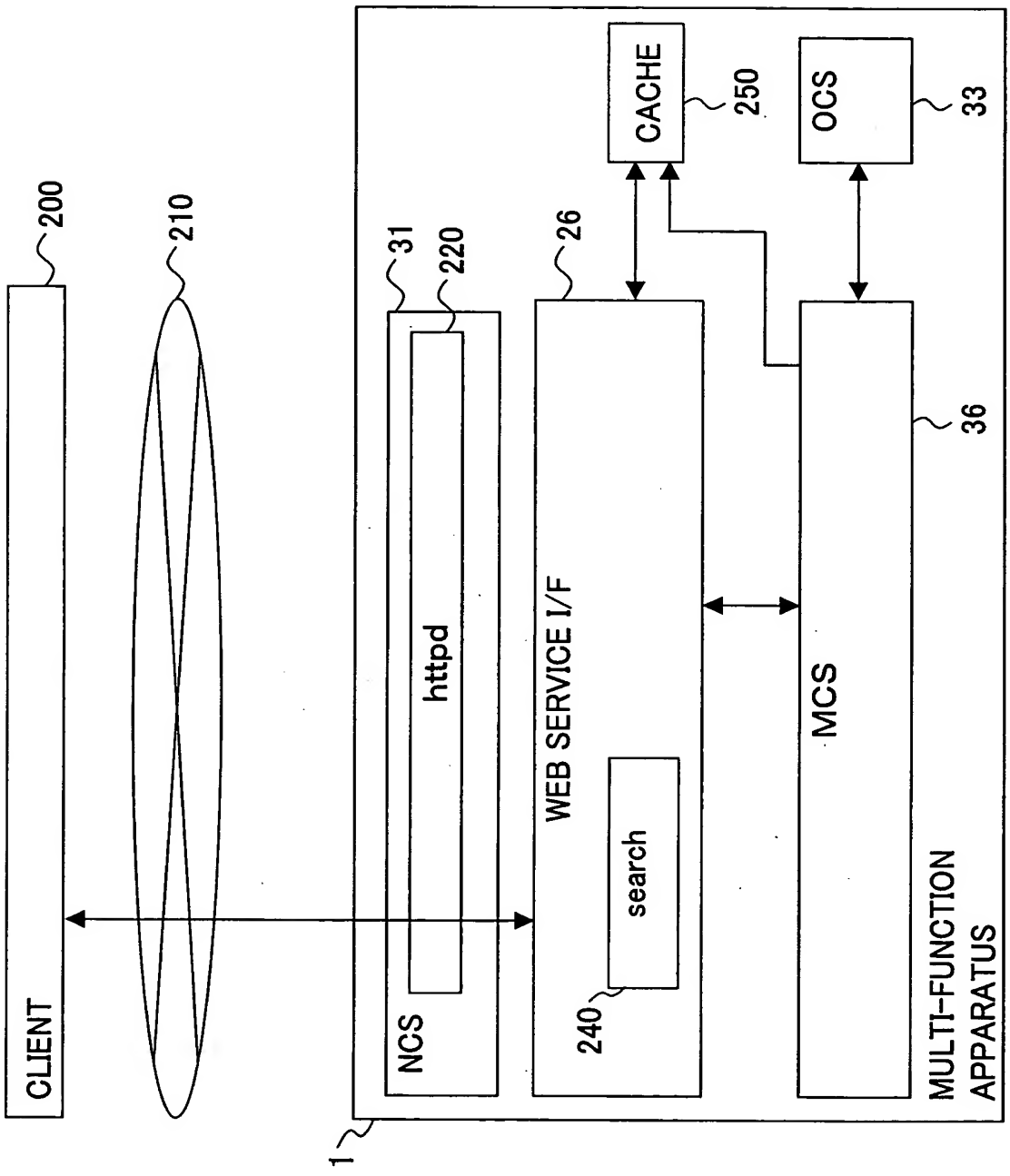

200
210
31
220
26
CACHE
250
OCS
33
36
CLIENT
NCS
httpd
WEB SERVICE I/F
search
240
MCS
MULTI-FUNCTION APPARATUS
1

FIG.18

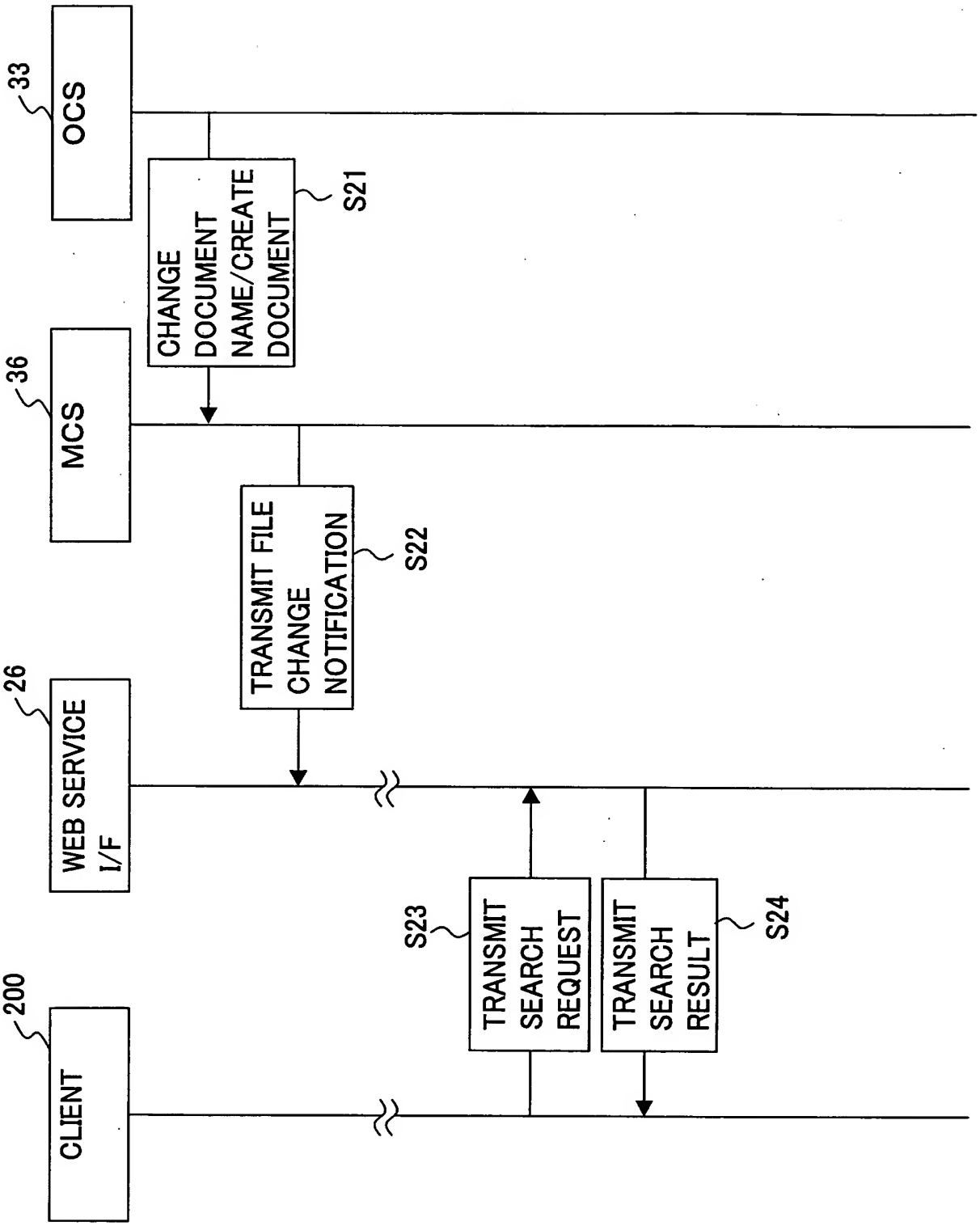

33
OCS
CHANGE DOCUMENT NAME/CREATE DOCUMENT
S21
36
MCS
TRANSMIT FILE CHANGE NOTIFICATION
S22
26
WEB SERVICE I/F
S23
TRANSMIT SEARCH REQUEST
TRANSMIT SEARCH RESULT
S24
200
CLIENT

FIG.19

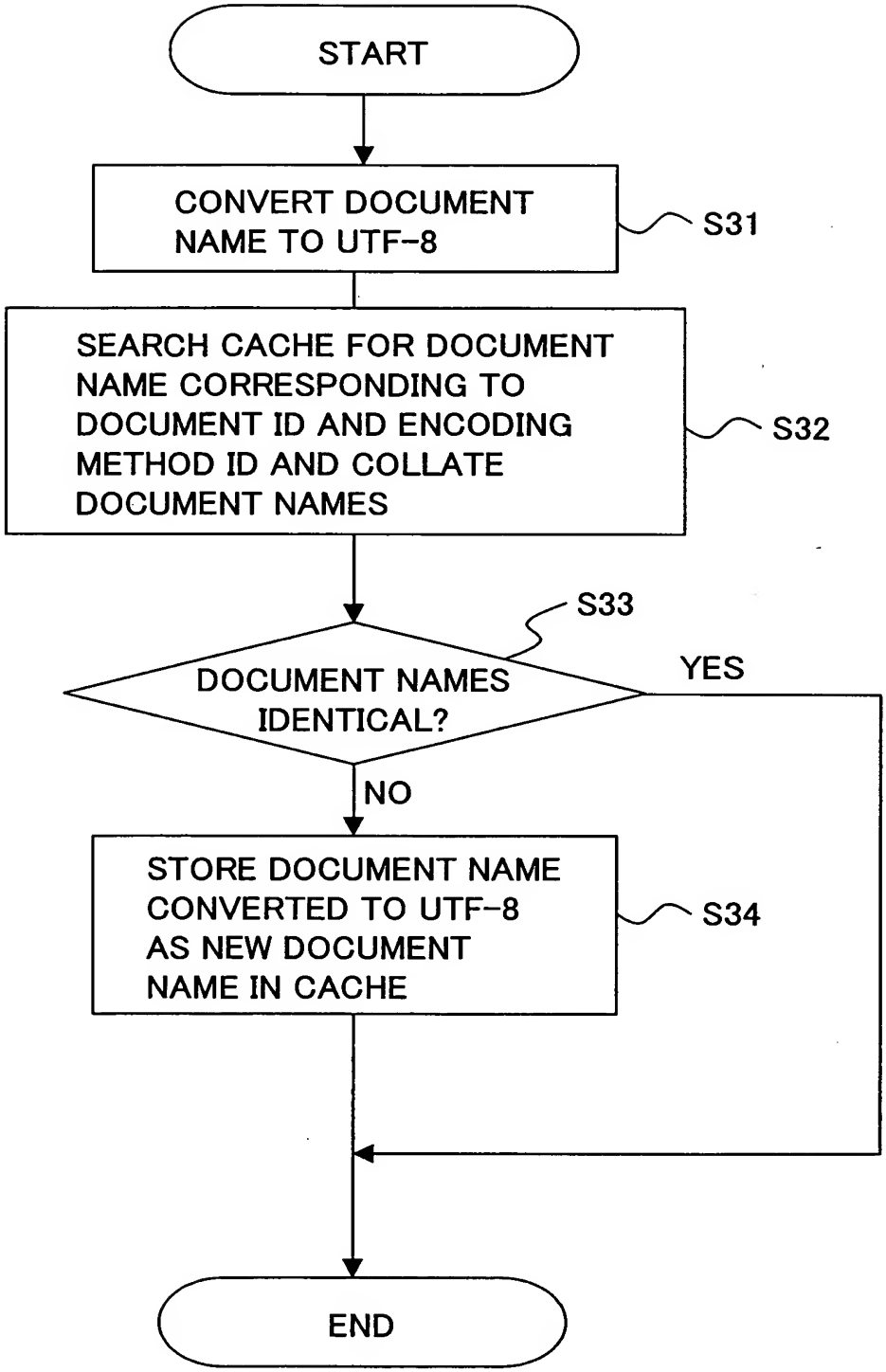

START
CONVERT DOCUMENT NAME TO UTF-8
S31
SEARCH CACHE FOR DOCUMENT NAME CORRESPONDING TO DOCUMENT ID AND ENCODING METHOD ID AND COLLATE DOCUMENT NAMES
S32
S33
DOCUMENT NAMES IDENTICAL?
YES
NO
STORE DOCUMENT NAME CONVERTED TO UTF-8 AS NEW DOCUMENT NAME IN CACHE
S34
END

FIG.20

```
- <SOAP-ENV:Envelope xmlns:SOAP-
    ENV="http://schemas.xmlsoap.org/soap/envelope/" xmlns:SOAP-
    ENC="http://schemas.xmlsoap.org/soap/encoding/"
    xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
    xmlns:xsd="http://www.w3.org/2001/XMLSchema" SOAP-
    ENV:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
    xmlns:m0="http://schemas.xmlsoap.org/soap/encoding/"
    xmlns:m1="http://schemas.ricoh.co.jp/repository">
  - <SOAP-ENV:Body>
    - <m:search xmlns:m="http://soapdefs.ricoh.co.jp/repository">
      - <condition>
          <operator>CONTAINS_ANY_AT_HEAD</operator>
          <propName>title</propName>
          <propVal>Göte</propVal>
        </condition>
      </m:search>
    </SOAP-ENV:Body>
  </SOAP-ENV:Envelope>
```

FIG.21

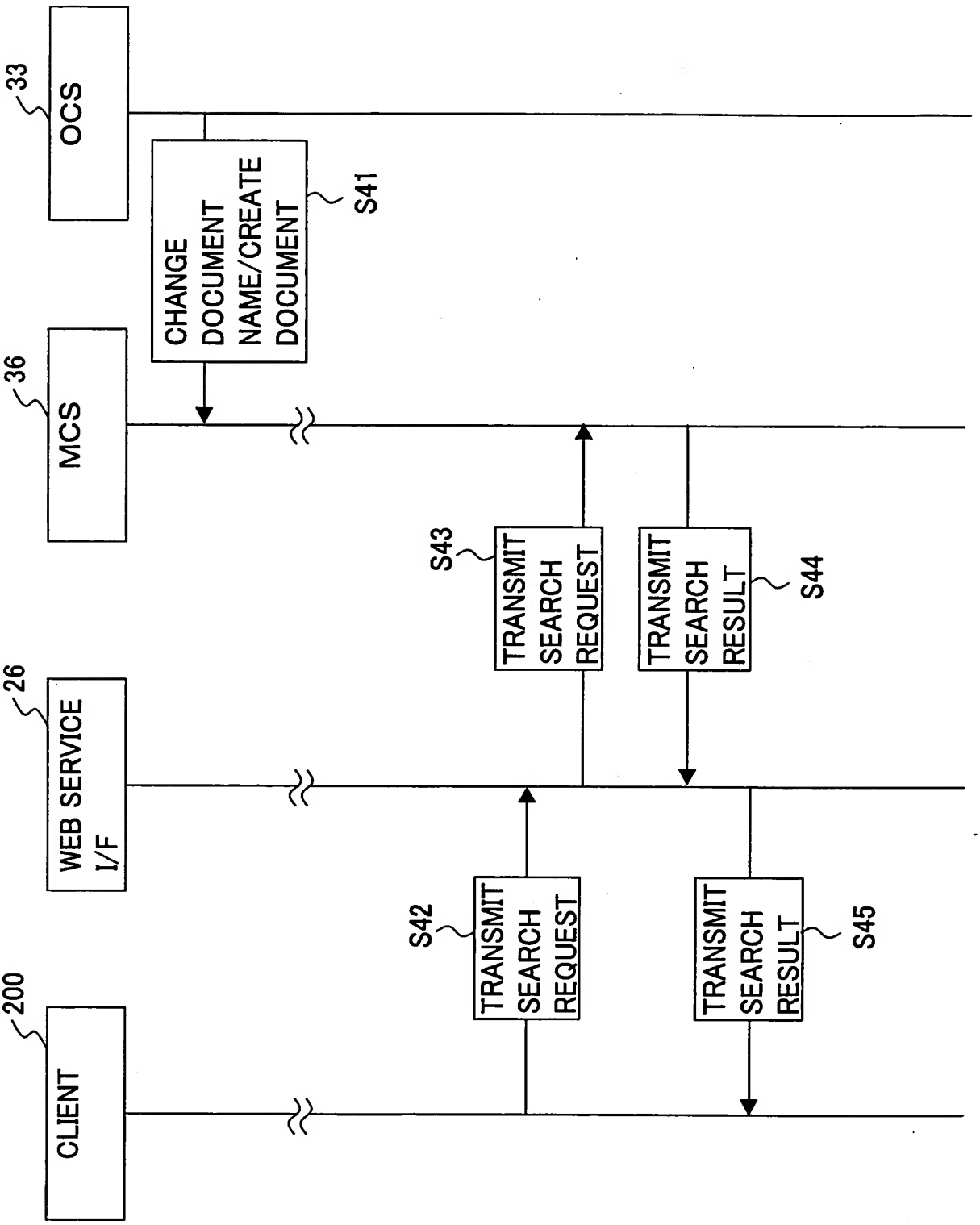

33
OCS
CHANGE DOCUMENT NAME/CREATE DOCUMENT
S41
36
MCS
S43
TRANSMIT SEARCH REQUEST
TRANSMIT SEARCH RESULT
S44
26
WEB SERVICE I/F
S42
TRANSMIT SEARCH REQUEST
TRANSMIT SEARCH RESULT
S45
200
CLIENT

FIG.22

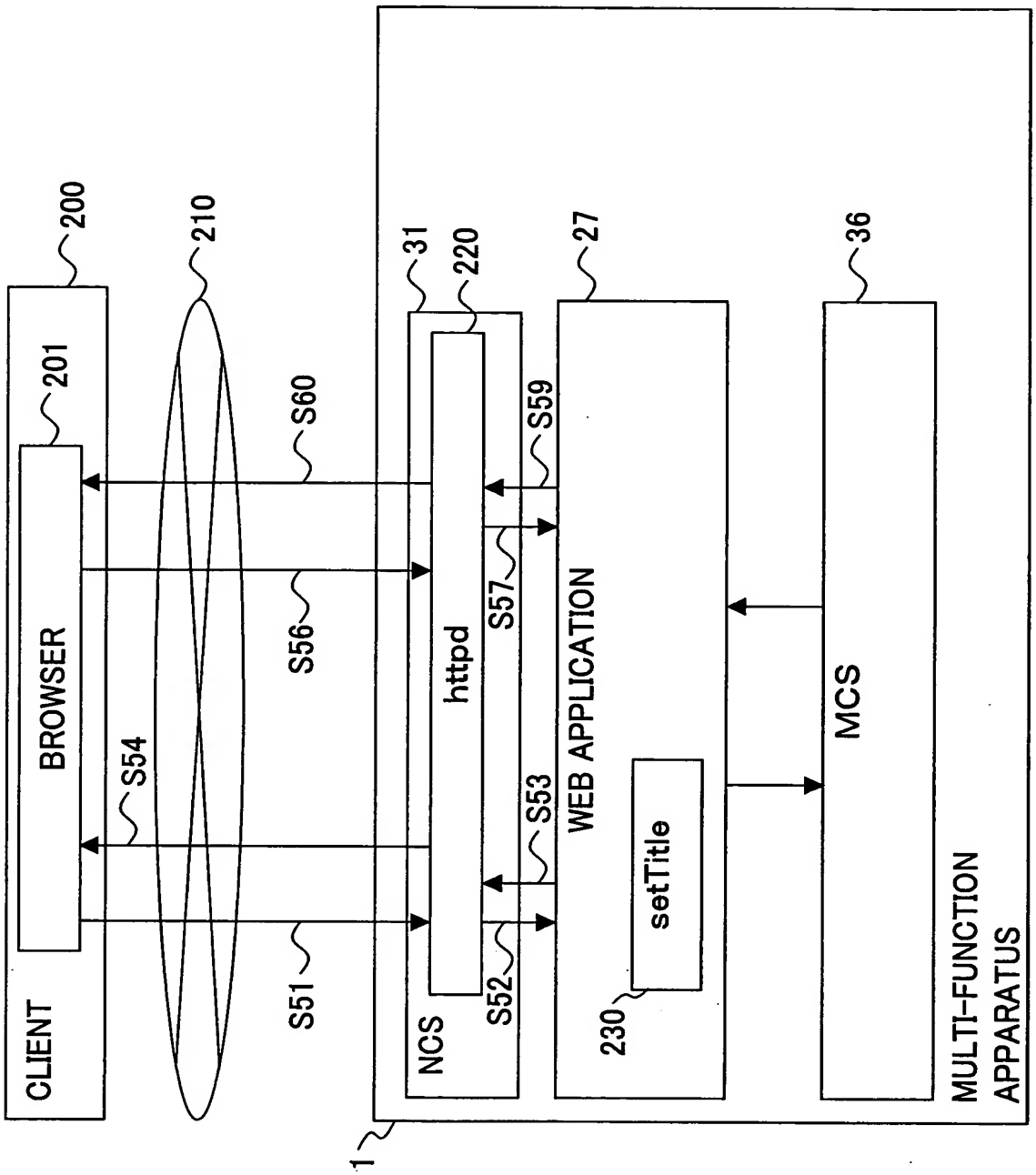
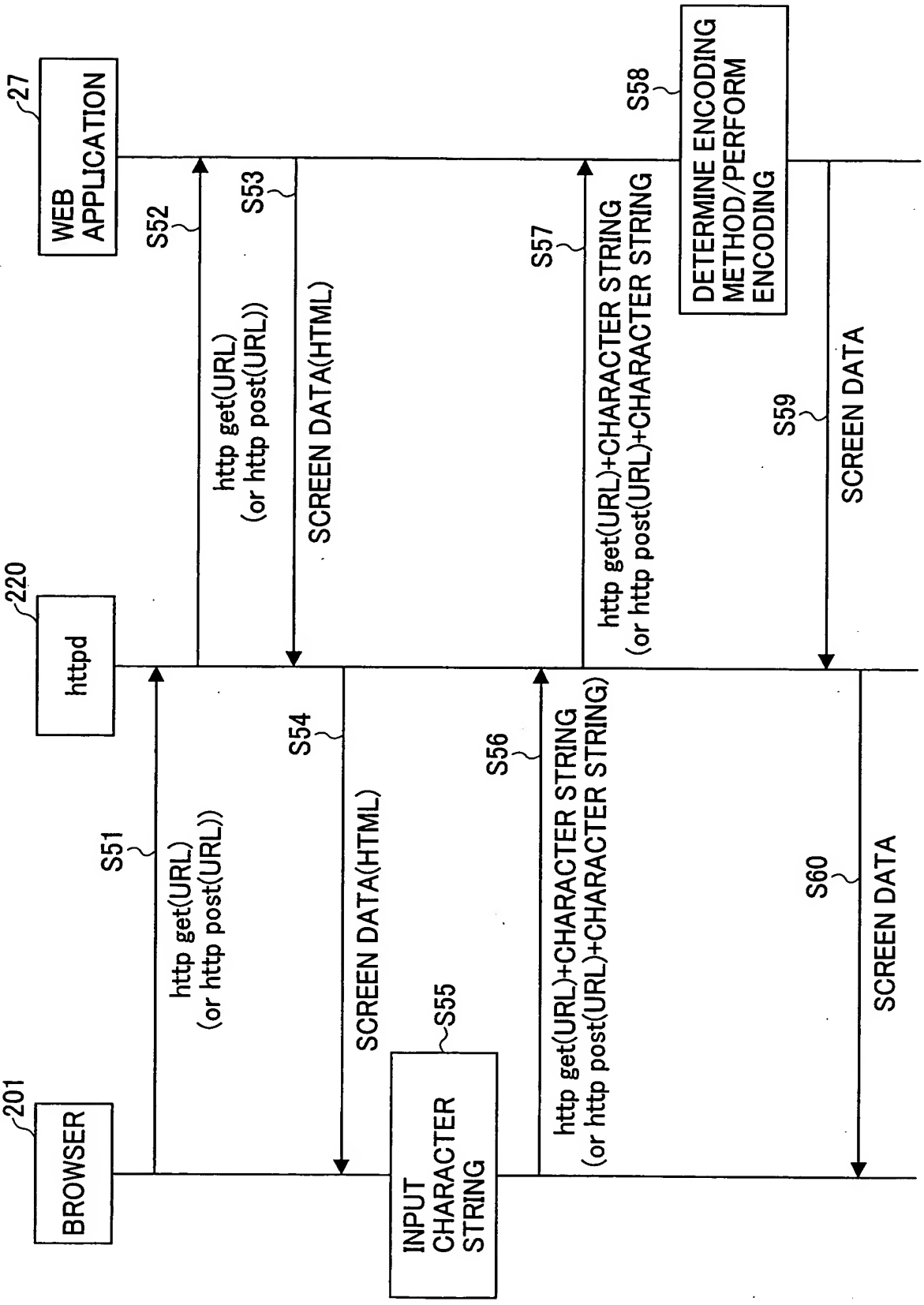

CLIENT
BROWSER
200
201
210
S51
S52
S53
S54
S56
S57
S59
S60
NCS
31
httpd
220
WEB APPLICATION
27
setTitle
230
MCS
36
MULTI-FUNCTION APPARATUS
1

FIG.23


27
WEB APPLICATION
220
httpd
201
BROWSER
S51
http get(URL)
(or http post(URL))
S52
http get(URL)
(or http post(URL))
S53
SCREEN DATA(HTML)
S54
SCREEN DATA(HTML)
S55
INPUT CHARACTER STRING
S56
http get(URL)+CHARACTER STRING
(or http post(URL)+CHARACTER STRING)
S57
http get(URL)+CHARACTER STRING
(or http post(URL)+CHARACTER STRING
S58
DETERMINE ENCODING METHOD/PERFORM ENCODING
S59
SCREEN DATA
S60
SCREEN DATA